

LISTING OF CLAIMS

1. (Currently Amended) A method of making a nonwoven fabric having high elongation in a first direction and low elongation relative thereto in a second direction normal to the first direction, comprising the steps of:

(A) providing a nonwoven defined by substantially randomly oriented, substantially continuous fibers [of a poly (monolefin)] of polypropylene homopolymer;
and

(B) applying to the nonwoven a regular pattern of bonding points, the bonding points defining a total bonding area along the second direction greater than along the first direction, the bonding points forming a uniform pattern of bond density in the first direction different from the uniform pattern of bond density in the second direction, the regular pattern of bonding points being selected from the group consisting of:

(i) each bonding point having an aspect ratio of 1:1 and the spacing therebetween varying orthogonally;

(ii) each bonding point having an aspect ratio of other than 1:1, and the major and minor axes of each bonding point being non-parallel to the major and minor axes, respectively, of a majority of the adjacent bonding points;

(iii) each bonding point being formed from a collection of smaller bonding points that are grouped together; and

(iv) combinations thereof.

2. (Original) The method of Claim 1 wherein the total bonding area along the second direction is 1.1-5.0 times greater than along the first direction.
3. (Original) The method of Claim 1 wherein the nonwoven has a low tensile strength relative thereto in the first direction and a high tensile strength in the second direction.
4. (Original) The method of Claim 1 wherein the bonding points are substantially oval in plan.
5. (Original) The method of Claim 4 wherein each of the oval bonding points has an extension along the second direction 1.1-10.0 times greater than along the first direction.
6. (Original) The method of Claim 4 wherein the oval bonding points are elongated and extend at an angle less than 45° relative to the second direction.
7. (Original) The method of Claim 4 wherein the oval bonding points define gaps therebetween of unbonded nonwoven in the first direction of a length 1.1-3.0 times the length of the gaps therebetween of unbonded nonwoven defined by the oval bonding points in the second direction.
8. (Original) The method of Claim 1 wherein the bonding points are circular in plan and disposed closer to each other in the second direction than in the first direction.
9. (Original) The method of Claim 8 wherein the circular bonding points define gaps therebetween of unbonded nonwoven in the first direction of a length

1.1-3.0 times the gaps therebetween of unbonded nonwoven defined by the circular bonding points in the second direction.

10. (Original) The method of Claim 1 having unbonded fiber portions and bonded fiber portions, with a bonded portion/unbonded portion ratio greater along the second direction than along the first direction.

11. (Cancelled)

12. (Previously Presented) The method of Claim 1 wherein the first direction is the cross-direction (CD) and the second direction is the machine direction (MD).

13. (Cancelled)

14. (Original) The method of Claim 1 wherein the nonwoven is selected from the group consisting of a spunbond fabric and a meltblown fabric.

15. (Original) The method of Claim 1 wherein the bonding points are produced by a process selected from the group consisting of a thermobonding process using an engraved roll to form bonding points on the nonwoven, an ultrasonic process using an engraved roll to form bonding points on the nonwoven, and a chemical adhesive process using a screen roll to form bonding points on the nonwoven.

16. (Currently Amended) A method of making a nonwoven fabric having low tensile strength and high percent elongation in a first direction and high tensile strength and low percent elongation relative thereto in a second direction normal to the first direction, comprising the steps of:

(A) providing a nonwoven defined by substantially randomly oriented, substantially continuous fibers [of a poly (monolefin)] of polypropylene homopolymer; and

(B) applying to the nonwoven a regular pattern of bonding points, the bonding points defining a total bonding area along the second direction greater than along the first direction, the bonding points forming a uniform pattern of bond density in the first direction different from the uniform pattern of bond density in the second direction, the total bonding area along the second direction being 1.1-5.0 times greater than along the first direction, thereby causing the nonwoven to have unbonded fiber portions and bonded fiber portions, with a bonded portion/unbonded portion ratio greater along the second direction than along the first direction, the regular pattern of bonding points being selected from the group consisting of:

(i) each bonding point having an aspect ratio of 1:1 and the spacing therebetween varying orthogonally;

(ii) each bonding point having an aspect ratio of other than 1:1, and the major and minor axes of each bonding point being non-parallel to the major and minor axes, respectively, of a majority of the adjacent bonding points;

(iii) each bonding point being formed from a collection of smaller bonding points that are grouped together; and

(iv) combinations thereof.

17. (Original) The method of Claim 16 wherein each of the bonding points is substantially oval in plan, has an extension along the second direction 1.1-10.0 times

greater than along the first direction, and is elongated and extends at an angle less than 45 degrees relative to the second direction, the oval bonding points defining gaps therebetween of unbonded nonwoven in the first direction of a length 1.0-3.0 times the gaps therebetween of unbonded nonwoven defined by the bonding points in the second direction.

18. (Original) The method of Claim 16 wherein each of the bonding points is circular in plan and disposed closer to each other in the second direction than in the first direction, the circular bonding points defining gaps of unbonded nonwoven in the first direction of a length 1.1-3.0 times the gaps of unbonded nonwoven defined by the circular bonding points in the second direction.

19. (Original) The method of Claim 16 wherein the first and second directions are mutually transverse, and the nonwoven is a spunbond defined by substantially randomly oriented fibers, with the bonding points being produced by a thermobonding process using an engraving roll to form bonding points on the nonwoven.

20. (Currently Amended) A method of making a nonwoven fabric having low tensile strength and high elongation in a first direction and high tensile strength and low elongation relative thereto in a second direction normal to the first direction, comprising the steps of:

(A) providing a nonwoven defined by substantially randomly oriented, substantially continuous fibers [of a poly (monolefin)] of polypropylene homopolymer; and

(B) applying to the nonwoven a regular pattern of bonding points, the bonding points defining a total bonding area along the second direction greater than along the first direction, the bonding points forming a uniform pattern of bond density in the first direction different from the uniform pattern of bond density in the second direction, the bonding points defining gaps therebetween of unbonded nonwoven in the first direction of a length greater than the length of the gaps therebetween of unbonded nonwoven defined by the bonding points in the second direction, the regular pattern of bonding points being selected from the group consisting of:

(i) each bonding point having an aspect ratio of 1:1 and the spacing therebetween varying orthogonally;

(ii) each bonding point having an aspect ratio of other than 1:1, and the major and minor axes of each bonding point being non-parallel to the major and minor axes, respectively, of a majority of the adjacent bonding points;

(iii) each bonding point being formed from a collection of smaller bonding points that are grouped together; and

(iv) combinations thereof.

21. (Currently Amended) A method of making a nonwoven fabric having high elongation in a first direction and low elongation relative thereto in a second direction normal to the first direction, comprising the steps of:

(A) providing a nonwoven defined by substantially randomly oriented, substantially continuous fibers of polypropylene homopolymer; and

(B) applying to the nonwoven a regular pattern of bonding points, the bonding points having a center-to-center separation greater in the first direction than in the second direction, the bonding points forming a uniform pattern of bond density in the first direction different from the uniform pattern of bond density in the second direction, the regular pattern of bonding points being selected from the group consisting of:

(i) each bonding point having an aspect ratio of 1:1 and the spacing therebetween varying orthogonally;

(ii) each bonding point having an aspect ratio of other than 1:1, and the major and minor axes of each bonding point being non-parallel to the major and minor axes, respectively, of a majority of the adjacent bonding points;

(iii) each bonding point being formed from a collection of smaller bonding points that are grouped together; and

(iv) combinations thereof.

22. (Original) The method of Claim 21 wherein the bonding points have a shape in plan selected from the group consisting of circular, square, oval and diamond.

23. (Original) The method of ~~Claims~~ Claim 21 wherein each of the bonding points is formed from a collection of smaller bonding points that are grouped together.

24. (Currently Amended) A method of making a nonwoven fabric having low tensile strength and high elongation in the CD and high tensile strength and low elongation relative thereto in the MD, comprising the steps of:

(A) providing a nonwoven defined by substantially randomly oriented, substantially continuous fibers [of a poly (monolefin)] of polypropylene homopolymer; and

(B) applying to the nonwoven a regular pattern of bonding points, the bonding points being non-symmetrical in plan, the bonding points forming a uniform pattern of bond density in the CD different from the uniform pattern of bond density in the MD, each bonding point having an extension in the CD less than the extension in the MD, the regular pattern of bonding points being selected from the group consisting of:

(i) each bonding point having an aspect ratio of 1:1 and the spacing therebetween varying orthogonally;

(ii) each bonding point having an aspect ratio of other than 1:1, and the major and minor axes of each bonding point being non-parallel to the major and minor axes, respectively, of a majority of the adjacent bonding points;

(iii) each bonding point being formed from a collection of smaller bonding points that are grouped together; and

(iv) combinations thereof.

25. (Original) The method of Claim 24 wherein the bonding points have a center-to-center separation greater in the CD than in the MD.

26. (Previously Presented) The method of Claim 1 wherein said bonding points define gaps therebetween of unbonded nonwoven in the first direction of a length greater than the length of the gaps therebetween of unbonded nonwoven defined by the bonding points in the second direction.

27. (Previously Presented) The method of Claim 1 wherein said bonding points have a center-to-center separation greater in the first direction than in the second direction.

28. (Previously Presented) The method of Claim 1 wherein the bonding points have a common orientation and common dimensions.

29. (Previously Presented) The method of Claim 16 wherein the bonding points have a common orientation and common dimensions.

30. (Previously Presented) The method of Claim 20 wherein the bonding points have a common orientation and common dimensions.

31. (Previously Presented) The method of Claim 21 wherein the bonding points have a common orientation and common dimensions.

32. (Previously Presented) The method of Claim 24 wherein the bonding points have a common orientation and common dimensions.

33. (Previously Presented) The method of Claim 1 wherein each of the bonding points is formed from a collection of smaller bonding points that are grouped together.

34. (Previously Presented) The method of Claim 20 wherein each of the bonding points is formed from a collection of smaller bonding points that are grouped together.

35. (Previously Presented) The method of Claim 24 wherein each of the bonding points is formed from a collection of smaller bonding points that are grouped together.